Line Plots with Fractions

Apply the skill to decisions and designs

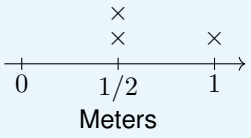
Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

A line plot puts one X above each measurement. Stack marks at lengths that repeat. To add lengths, count every mark and use equal-sized units. On a fourths plot, each small step is $\frac{1}{4}$ m.

Worked example

Find the total length of the pieces shown.



1. Read every mark as a length, in equal steps of $\frac{1}{2}$ m.

2. $1 + 1 + 2 = 4$ steps in all.

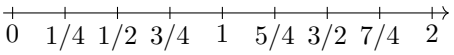
3. The total length is $\frac{4}{2} = 2$ m.

Answer: 2 m.

Practice Problems

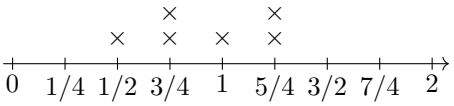
Show your thinking.

1. Plot the lengths in this delivery of garden stakes. Measurements (m): $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1, $\frac{3}{2}$.



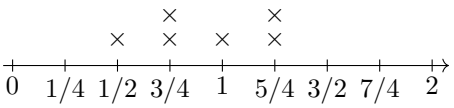
Meters; one X = one item

2. Join two $\frac{3}{4}$-m stakes and one $1\frac{1}{4}$-m stake end to end. Is there enough stock, and does that plan reach 3 m?



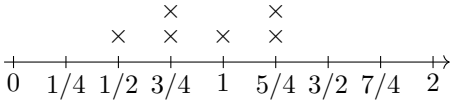
Meters; one X = one item

3. You need four stakes, each at least $\frac{3}{4}$ m. Can you choose them without using any $1\frac{1}{4}$-m stakes?



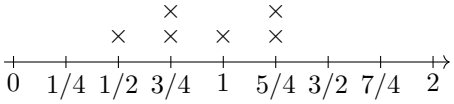
Meters; one X = one item

4. The plan needs four $1\frac{1}{4}$-m stakes. How many of that length must be bought?



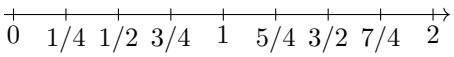
Meters; one X = one item

5. A child says removing one longest stake must reduce the longest-minus-shortest difference. Test the claim.



Meters; one X = one item

6. Five stakes measure $\frac{1}{4}, \frac{3}{4}, 1, 1, 1\frac{1}{4}$ m. Add one stake to make exactly 5 m, then plot all six.



Meters; one X = one item

Answer Key

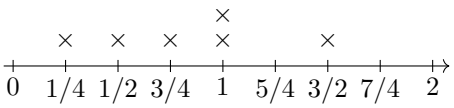
1. Stacks (length in m): $\frac{1}{4}$: 1, $\frac{1}{2}$: 1, $\frac{3}{4}$: 1, 1: 2, $\frac{3}{2}$: 1.
2. The pieces are available, but the length is $\frac{1}{4}$ m short.
3. No; use at least one $1\frac{1}{4}$-m stake.
4. Buy 2 stakes.
5. The difference stays $\frac{3}{4}$ m.
6. Add $\frac{3}{4}$ m. Plot counts $1, 2, 2, 1$ at $\frac{1}{4}, \frac{3}{4}, 1, \frac{5}{4}$ m.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Tally repeats: $\frac{1}{4}$ has 1, $\frac{1}{2}$ has 1, $\frac{3}{4}$ has 1, 1 has 2, $\frac{3}{2}$ has 1.
2. Place one X for every measurement above its tick.
3. $1 + 1 + 1 + 2 + 1 = 6$ marks in the completed plot.



Meters; one X = one item

Problem 2

1. There are two $\frac{3}{4}$-m stakes and two $\frac{5}{4}$-m stakes. That is enough of each requested size.
2. The chosen pieces total $\frac{3}{4} + \frac{3}{4} + \frac{5}{4} = \frac{11}{4}$ m.
3. $3 = \frac{12}{4}$ m, so they fall short by $\frac{1}{4}$ m.

Problem 3

1. Include the stack at $\frac{3}{4}$ m and those to its right.
2. Exclude $\frac{5}{4}$ m. Only two $\frac{3}{4}$-m stakes and one 1-m stake qualify.
3. $2 + 1 = 3$ is one short of four, so use at least one longer stake.

Problem 4

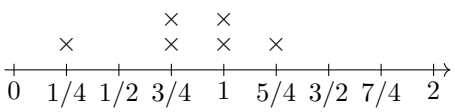
1. The $\frac{5}{4}$-m stack has two marks.
2. $4 - 2 = 2$ more are needed.
3. $2 + 2 = 4$ checks the final stock.

Problem 5

1. There are two stakes at the longest length, $\frac{5}{4}$ m.
2. Removing one leaves another $\frac{5}{4}$-m stake and the same shortest length, $\frac{1}{2}$ m.
3. The difference stays $\frac{5}{4} - \frac{2}{4} = \frac{3}{4}$ m.

Problem 6

1. The current total is $\frac{1}{4} + \frac{3}{4} + \frac{4}{4} + \frac{4}{4} + \frac{5}{4} = \frac{17}{4}$ m.
2. The missing length is $\frac{20}{4} - \frac{17}{4} = \frac{3}{4}$ m.
3. Stack two X marks at $\frac{3}{4}$ m and 1 m, and one each at $\frac{1}{4}$ m and $\frac{5}{4}$ m.



Meters; one X = one item

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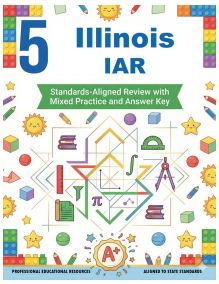

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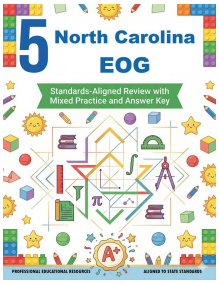

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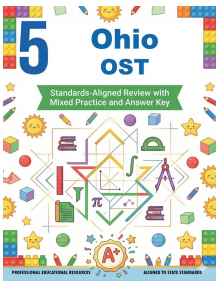

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